

**REMARKS**

In accordance with the foregoing, the specification, the abstract, and claims 1-3, 5, 13, 14, 16-19, 21, and 22 have been amended. Claims 1-5, 7, and 13-22 are pending, with claims 1, 2, 5, 13, 21, and 22 being independent. No new matter is presented in this Amendment After Allowance Under 37 CFR 1.312.

Submission of English Translation of Priority Document

The paragraph bridging pages 7 and 8 of the Amendment of January 4, 2008, states as follows:

As a point of clarification, the instant application claims priority to Korean Patent Application No. 98-54190, filed on December 10, 1998 in the Korean Intellectual Property Office. A certified copy of Korean Patent Application No. 98-54190 was filed in the United States Patent and Trademark Office as acknowledged by the Examiner on page 1 of the Office Action [of October 5, 2007]. Further, enclosed is an English translation of Korean Patent Application No. 98-54190 along with a statement from the translator in compliance with 37 CFR 1.55(a)(4).

The first full paragraph on page 8 of the Amendment After Final Rejection of June 2, 2008, states as follows:

As a point of clarification, the instant application claims priority to Korean Patent Application No. 98-54190, filed on December 10, 1998 in the Korean Intellectual Property Office. A certified copy of Korean Patent Application No. 98-54190 was filed in the United States Patent and Trademark Office as acknowledged by the Examiner on page 1 of the Office Action [of April 1, 2008]. Further, an English translation of Korean Patent Application No. 98-54190 along with a statement from the translator in compliance with 37 CFR 1.55(a)(4) was previously filed on January 4, 2008.

The second paragraph on page 2 of the Office Action of July 9, 2008, states as follows:

Applicant is asked to resubmit the English translation of Korean Patent Application No. 98-54190 because the English translation is not found in Applicant's file.

Accordingly, pursuant to 37 CFR 1.55(a)(4) and MPEP 201.15, submitted herewith is a Submission of English Translation of Priority Document submitting an English translation of

Korean Application No. 98-54190, one of the five Korean priority applications of the present application, and a Certification of Translation containing a statement that the English translation is accurate to perfect the applicants' claim for foreign priority under 35 USC 119(a)-(d) with respect to Korean Application No. 98-54190. A certified copy of Korean Application No. 98-54190 was filed on June 15, 1999, in Application No. 09/333,520, the great-grandparent application of the present continuation application, and is in the file of the great-grandparent application, which is maintained as a paper file. The Office acknowledged receipt of the certified copy in great-grandparent Application No. 09/333,520 in item 4(a)(2) in the Notice of Allowability included in the Notice of Allowance of November 1, 2011.

Entry of Amendment After Allowance Under 37 CFR 1.312

The amendments to the specification, abstract, and claims 1-3, 5, 13, 14, 16-19, 21, and 22 presented in this Amendment After Allowance Under 37 CFR 1.312 are needed for the detailed reasons discussed below, and were not presented earlier because the need for these amendments was not discovered until after the Notice of Allowance of November 1, 2011, was issued.

It is submitted that amended claims 1-3, 5, 13, 14, 16-19, 21, and 22 presented in this Amendment After Allowance Under 37 CFR 1.312 (of which amended claims 1, 2, 5, 13, 21, and 22 are independent) require no additional search or examination and remain patentable because the Examiner's Statement of Reasons for the Indication of Allowable Subject Matter on pages 7-9 of the Office Action of May 25, 2011, which discusses independent claims 1, 2, 5, and 13, and the Examiner's Statement of Reasons for Allowance on page 2 of the Notice of Allowability included in the Notice of Allowance of November 1, 2011, which discusses independent claims 21 and 22 and incorporates by reference the Examiner's Statement of Reasons for the Indication of Allowable Subject Matter on pages 7-9 of the Office Action of May 25, 2011, are still applicable to amended claims 1-3, 5, 13, 14, 16-19, 21, and 22 presented in this Amendment After Allowance Under 37 CFR 1.312.

Accordingly, it is submitted that entry of this Amendment After Allowance Under 37 CFR 1.312 is proper under 37 CFR 1.312, MPEP 714.16 (see MPEP pages 700-265 and 700-266) and MPEP 714.16(d)(l) (see MPEP pages 700-267 and 700-268).

Amendments to the Specification

Paragraph [0001] has been amended to update the status of the parent, grandparent, and great-grandparent applications of the present continuation application, and to improve its form.

Paragraph [0005] has been amended to add "cartridge, a single sided disc or double sided disc is installed in the cartridge and the installed" as the second line of this paragraph. This line was inadvertently deleted from paragraph [0005] in the specification as originally filed on February 18, 2004. This change is supported by line 2 of paragraph [0005] on page 1 of Application No. 10/107,147, the parent application of the present continuation application, which is incorporated by reference in the present continuation application in paragraph [0001] of the specification of the present continuation application as originally filed on February 18, 2004, and is also incorporated by reference in the present continuation application in item 7 in the application transmittal letter of the present continuation application filed on February 18, 2004. A copy of page 1 of parent Application No. 10/107,147 is attached to this Amendment After Allowance Under 37 CFR 1.312. Paragraph [0005] has also been amended to change "can not" to "cannot" to correct a spelling error.

Paragraph [0027] has been amended to state "[a]lso, in the byte positions 16 to 39, i.e., BP16~BP39, of the disc definition structure (DDS)" to clarify which byte positions are being referred to. It is submitted that this change is supported by paragraph [0026] as originally filed, which states "[i]n the byte position 3, i.e., BP3, of the disc definition structure (DDS)." Also, other changes have been made to paragraph [0027] to correct obvious errors and improve its form.

Paragraphs [0006], [0009], [0018], [0022], [0026], [0030]-[0032], [0035], [0042], [0045], [0047], [0052], [0071], [0073], [0078], and [0080] have been amended to correct obvious errors and/or to improve their form.

Amendments to the Abstract

The abstract has been amended to correct obvious errors and to improve its form, and to have no more than 150 words as required by 37 CFR 1.72(b). The abstract as originally filed contained 159 words. The amended abstract contains 135 words.

Amendments to the Claims

The preamble of dependent claim 3 has been amended to be consistent with the preamble of independent claim 1 from which claim 3 depends. Another change has been made to claim 3 to correct an obvious error.

The preamble of claim 5 has been amended to more clearly recite the relationship between the various elements. Other changes have been made to claim 5 to correct obvious errors and improve its form.

Dependent claim 17 has been amended to change "the Lead-out area" to "a lead-out area of the recording medium" because there is no antecedent basis for "the Lead-out area" in claim 17 or in independent claim 13 from which claim 17 depends. Another change has been made to claim 17 to improve its form.

Independent claims 21 and 22 have been amended to recite that the lead-in area comprises a read-only area and a recordable data area, rather than comprising a read-only area and a rewritable data area as they previously recited. This change is supported at least by paragraphs [0003], [0009], [0011], [0016]-[0019], [0062], [0063], [0066], [0068], [0069], [0073]-[0075], and [0081] of the specification as originally filed, which state as follows (emphasis added):

[0003] A DVD-R (Digital Versatile Disc-Recordable) standard and a WORM (Write Once Read Many) standard are standards for a write-once disc, and a DVD-RAM (Digital Versatile Disc Random Access Memory) standard and a DVD-RW (Digital Versatile Disc-Rewritable) standard are standards for a rewritable disc.

[0009] Also, there are many DVD related specifications such as a DVD-ROM specification (DVD specification for Read Only Memory), and a DVD-R specification (DVD specification for Recordable Disc). Also, many specifications for rewritable DVD, which are not established yet, can be considered, e.g., a DVD

specification for a rewritable and readable disc, which is very similar to the DVD-R specification, and a DVD specification for a disc with enhanced density. Such a series of specifications with the prefix of DVD are called the "DVD family."

[0011] In the case of a DVD-RAM, a disc can be used in a bare state as well as with the case on. However, in the instance of a DVD-R or a DVD-RW, a disc in a case cannot be used, so that the need to protect the bare disc from unwanted overwriting or erasing has increased. However, when a bare disc taken out of a case is used, it is not possible to utilize the write-inhibit hole, so the write protection must be provided on the disc itself.

[0016] It is still another object of the present invention to provide a write protection method for a recording and/or reproducing apparatus, capable of protecting information written on a recordable and/or rewritable medium from being undesirably overwritten or erased.

[0017] To achieve the first and second objects of the present invention, there is provided a recordable and/or rewritable recording medium which may be contained in a case of a cartridge or may be in a bare state, wherein the recording medium stores write protection information capable of protecting the data recorded on the recording medium from unwanted overwriting or erasing.

[0018] To achieve the third object of the present invention, there is provided a write protection method for an optical disc recording and/or reproducing apparatus, wherein data recorded on a recordable or reproducible recording medium including a Lead-in area, a Lead-out area and a user data area is protected from unwanted overwriting or erasing, the method comprising the steps of: (a) checking write-protection information stored on the recording medium; and (b) prohibiting writing of data on the recording medium according to the write protection information.

[0019] The above objects and advantages of the present invention will become more apparent by describing in detail preferred embodiments thereof with reference to the attached drawings in which:

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FIG. 10 shows the structure of a disc satisfying general DVD-R and DVD-RW specifications;

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FIG. 13 shows the contents of an RMD (Recording Management data) field of an RMA (Recording Management Area) according to the DVD-R and DVD-RW specifications;

....  
[0062] The write protection method suggested above is not limited to only the DVD-RAM, and can be applied to a disc that has specifications physically the same as DVD-R/RW and similar to the DVD specifications, which will now be described.

[0063] FIG. 10 shows the structure of a disc according to general DVD-R and DVD-RW specifications. The disc is roughly divided into two parts with respect to functionality, including an R (Recording)-information area and an information area. The R-information area is divided into a PCA (Power Calibration Area) for calibrating power, and an RMA (Recording Management Area) including general information relating to recording, i.e., information about the recording mode of a disc, recording state, optimal power control and border zone, and the information area is divided into a Lead-in area, data recordable area in which data is recordable by a user and a Lead-out area that is not defined yet in the DVD-R and DVD-RW specifications.

[0066] FIG. 13 shows the content of an RMD (Recording Management Data) field of the RMA according to the DVD-R and DVD-RW specifications. The RMA comprises an RMA Lead-in area including a system reserved field (contents: 00h) and a unique ID field, and RMD fields. As shown in FIG. 13, one RMD block consists of 16 sectors (15 RMD fields), in which the first sector is allocated as a linking-loss area, general information of the disc is stored in RMD field 0, Optimum Power Control (OPC) related information is stored in RMD field 1, user specific data (contents: 00h) is stored in RMD field 2, and border zone information is stored in RMD field 3. Also, in the case of a DVD-R disc according to the specifications of version 1.9, Rzone (Recording Zone) information including recording items is stored in RMD field 4 through RMD field 12 whenever the recording is performed, and RMD field 13 and RMD field 14 are reserved. Five identical copies of the RMD block are made.

[0068] FIG. 14 shows the contents of the general information of a disc stored in the RMD field 0 of FIG. 13. In FIG. 14, byte positions BP0 and BP1 store information about RMD format (recorded only with 0001h), byte position BP2 stores information about the disc status, and byte position BP3 is reserved. The byte positions BP4 through BP21 store unique disc identifier information that stores the recording date and time of the data as ASCII code. Pre-pit information is copied over the byte positions BP22 through BP85, and the remaining byte positions BP86 through BP2047 are reserved. Here, in the DVD-R disc, the disc status information stored in the byte position BP2 is defined as follows.

(BP2) Disc status

00b: Indicates that disc is empty

01b: Indicates that disc is in Disc-at-once recording mode

02b: Indicates that disc is in incremental recording mode

03b: Indicates that disc is finalized where incremental recording is used

Others: Reserved

[0069] FIG. 15 is an example of a table showing the state where the write protection information is stored on the disc adopting the DVD-R and DVD-RW specifications according to the present invention using the general information of a disc stored in RMD field 0 of FIG. 13.

[0073] Since the write protection information cannot be updated in the once-writable DVD-R, in consideration of the consistency with the DVD family, write protection information can be indicated through finalization that means the writing on the defined Lead-in area and Lead-out area. "Finalization" means the completion of writing in the Lead-in area and the Lead-out area as well as in the user data area, of a once-writable DVD-R disc. That is, that the finalization has been performed (completed) indicates the DVD-R is write-protected. Otherwise, it means that there is no write protection.

[0074] Also, as in the defect management area DMA 1, DMA 2, DMA 3 and DMA 4 of the DVD-RAM, the same content is recorded multiple times to cope with errors, thereby ensuring robustness. In the DVD-R/RW, such robustness is ensured by grouping RMDs of the RMA and providing the RMDs belonging to one group with the same content.

[0075] A disc must include format information informing whether the current disc is a DVD-R or a DVD-RW, such that a DVD-R disc and a DVD-RW disc is compatible in the same drive. As shown in FIG. 15, the RMD format can be defined using the byte positions BP0 and BP1 of RMD field 0 as follows.

(BP 0,1) RMD format

0001h for R

0002h for RW

0003h for R/RW compatible mode

[0081] In a recordable and/or rewritable medium according to the present invention, e.g., a disc satisfying the DVD

specifications, e.g., DVD-RAM, DVD-R and DVD-RW, data of a bare disc that is not contained in a case can be efficiently protected. Also, when either the case or the disc is in the write protection state, the writing of data is prohibited and the user is allowed to check the state of a disc or a cartridge. As a result, the data recorded on the disc can be protected efficiently from unwanted overwriting or erasing.

As can be seen from the above paragraphs, the write protection method disclosed in the present application is directed to both recordable recording mediums, such as a DVD-R, and rewritable recording mediums, such as a DVD-RAM and a DVD-RW. Claims 21-22, which were added in the Amendment of August 25, 2011, were intended to be directed to a recordable recording medium, such as a DVD-R, but due to an inadvertent clerical error, mistakenly recited that the lead-in area comprises a read-only area and a rewritable data area, rather than a read-only area and a recordable data area as was intended. As was notoriously well known in the art at the time great-grandparent Application No. 09/333,520 was filed, a recordable recording medium, such as a DVD-R, is not a rewritable medium, and does not contain any rewritable area.

Other changes have been made to claims 21 and 22 to improve their form.

Claims 1, 2, 13, 14, 16, 18, and 19 have been amended to correct obvious errors and/or improve their form.

### Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Office is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,

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Attachment

TITLE OF THE INVENTION

RECORDING MEDIUM FOR STORING WRITE PROTECTION INFORMATION AND WRITE PROTECTION METHOD THEREOF

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Divisional Application of Application No. 09/610,695 filed July 5, 2000, now pending, which is a Divisional Application of Parent Application No. 09/333,520 filed June 15, 1999, now pending. This application also claims the benefit of Korean Application Nos. 98-22390, filed June 15, 1998; 98-23917, filed June 24, 1998; 98-39727, filed September 24, 1998; 98-54190, filed December 10, 1998; and 99-4679, filed February 10, 1999, in the Korean Patent Office, the disclosure of which is incorporated in Application No. 09/333,520.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The present invention relates to optical recording and/or reproduction for recording digital data on a disc and/or reproducing the data therefrom, and more particularly, to a write protection method for protecting data recorded by a user on a write-once or rewritable medium from unwanted overwriting or erasing, and a recording medium for storing the write protection information.

2. Description of the Related Art

[0003] A DVD-R (Digital Versatile Disc-Recordable) standard and a WORM (Write Once Read Many) standard are standards for a write-once disc, and a DVD-RAM (Digital Versatile Disc Random Access Memory) standard and a DVD-RW (Digital Versatile Disc-Rewritable) standard are standards for a rewritable disc.

[0004] According to the DVD-RAM standards published in July of 1997, *DVD Specifications for Rewritable Disc, Part 1 Physical Specifications Version 1.0*, a DVD-RAM adopts a cartridge containing a disc, and discs from Type 2 and Type 3 cartridges can be used, after removal from the cartridge, as bare discs.

[0005] Three types of cartridges for a DVD-RAM are defined as follows. In the Type 1 cartridge, a single sided disc or double sided disc is installed in the cartridge and the installed

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